EXHIBIT M

Filed on behalf of Petitioner
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD
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RPX Corporation

Petitioner

v.

Applications in Internet Time, LLC

Patent Owner

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Case No. TBD

Patent No. 8,484,111

_____

DECLARATION OF MARK E. CROVELLA, PH.D.

TABLE OF CONTENTS

i

I, Mark E. Crovella, Ph.D., declare:

1.   I have been retained by Petitioner RPX Corporation ("RPX"), to assess U.S. Patent No. 8,484,111 ("the '111 patent). I am being compensated for my time at a rate of $450 per hour, plus actual expenses. My compensation is not dependent in any way upon the outcome of RPX's petition.

I.   PERSONAL AND PROFESSIONAL BACKGROUND

2.   I am Professor and Chair of the Department of Computer Science at Boston University. I received an undergraduate degree in Biology from Cornell University in 1982. I received a master's degree in Computer Science from the University of Buffalo in 1989. I received a Ph.D. in Computer Science from the University of Rochester in 1994. The subject of my Ph.D. thesis was "Performance Prediction and Tuning of Parallel Programs."

3.   From 1982 to 1984 I worked as a computer programmer for the State of Colorado. From 1984 to 1994 I was employed at Calspan Corporation, a research and development firm in Buffalo, NY, where I rose to the level of Senior Computer Scientist. My work at Calspan focused on development of experimental software and large-scale simulation software in support of contracts between Calspan and the U.S. Department of Defense.

4.   In 1994, I joined the faculty of Boston University as an Assistant Professor of Computer Science. I was promoted to the rank of Associate Professor

1

in 2000 and became a full Professor in 2006. Since 2013, I have served as Chair of the Department of Computer Science.

5.   I am well versed in application development architectures for client-server computing systems. For example, I developed large-scale client-server software for simulating radar systems in my position at Calspan, and I developed client-server applications for financial management in my position at the State of Colorado.

6.   My detailed employment background, professional experience, and list of technical papers and books are contained in my CV. (Ex. 1003).

7.   Prior to reviewing the '111 patent, I was well familiar with the subject matter described and claimed in the '111 patent. The '111 patent concerns a system with a multi-layered architecture for generating an application's user interface (UI). (Ex. 1001 at 33:19-34:8.) I am an expert in the field of computer application development, including in multi-layered architectures for application UI generation.

II.   MATERIALS REVIEWED AND CONSIDERED

8.   In connection with my work on this matter, I have reviewed the '111 patent (Ex. 1001) as well as the other following documents:

EXHIBIT	DESCRIPTION
1001	U.S. Patent No. 8,484,111 ("the '111 patent")

1008	Glenn E. Krasner and Stephen T. Pope, *A Description of the Model-View-Controller User Interface Paradigm in the Smalltalk-80 System*, ParcPlace Systems, 1988 ("Krasner")
1004	U.S. Patent No. 6,249,291 ("Popp")
1005	Srdjan Kovacevic, *Flexible, Dynamic User Interfaces for Web-Delivered Training*, Proceedings of the Workshop on Advanced Visual Interfaces, 1996 ("Kovacevic")
1006	U.S. Patent No. 5,806,071 ("Balderrama")
1007	*Java Complete!*, Datamation, March 1, 1996, pp. 28-49 ("Java Complete")
1009	Webster's New World Dictionary of Computer Terms, 6th Edition (1997), p. 30 (definition of "application"), p. 274 (definition of "Java applet")
1010	Barron's Dictionary of Computer and Internet Terms, 6th Edition (1998), p. 22 (definition of "application," "application program"), p. 371 (definition of "program")

III.   LEVEL OF ORDINARY SKILL IN THE ART

9.   For purposes of assessing whether prior art references disclose every element of a patent claim (thus "anticipating" the claim) and/or would have rendered the claimed invention obvious, I understand that the '111 patent and the

3

prior art references must be assessed from the perspective of a person having

ordinary skill in the art ("POSA") to which the patent is related, based on the

understanding of that person at the time of the invention date. I understand that a

POSA is presumed to be aware of all pertinent prior art and the conventional

wisdom in the art, and is a person having ordinary creativity. I have applied this

standard throughout my declaration.

10.   I have been asked to provide my opinion as to the state of the art in

the field of computer application development in the 1998 timeframe. I use the

1998 timeframe because the '111 patent claims priority on its face to an application

filed in December of 1998. Whenever I offer an opinion below about the

knowledge of a POSA, the manner in which a POSA would have understood the

claims of the '111 patent, the manner in which a POSA would have understood the

prior art, or what a POSA would have been led to do based on the prior art, I am

referencing this timeframe (i.e., 1998). When I offer an opinion or explanation

below about the teachings of the prior art and/or the claims of the '111 patent, I am

explaining how the issue would have been viewed by a POSA in the 1998

timeframe, even if I do not say so specifically in each case. In my opinion, a

POSA related to the '111 patent in the 1998 timeframe would have had at least a

B.S. in Computer Science or the equivalent, along with at least two years of

computer programming experience in developing applications for client-server

4

"portions of the server" could overlap with one another. Thus, the BRI of "portion

of the server" is "any one or more components or functionality of or on the server."

VI.   CLAIMS 13-18 ARE UNPATENTABLE IN LIGHT OF THE PRIOR ART IDENTIFIED IN RPX'S PETITION

23.   I have been asked to provide my opinion concerning whether claims

13-18 of the '111 patent are unpatentable based on the prior art references

identified in RPX's petition. The prior art references I reviewed include:

EXHIBIT	PRIOR ART REFERENCE
1004	U.S. Patent No. 6,249,291 ("Popp")
1005	Srdjan Kovacevic, *Flexible, Dynamic User Interfaces for Web-Delivered Training*, Proceedings of the Workshop on Advanced Visual Interfaces, 1996 ("Kovacevic")
1006	U.S. Patent No. 5,806,071 ("Balderrama")
1007	*Java Complete!*, Datamation, March 1, 1996, pp. 28-49 ("Java Complete")

24.   I understand that in an *inter partes* review proceeding, claim terms

should be given their broadest reasonable interpretation (BRI) consistent with the

specification. In my analysis below and as discussed above, I apply that standard

to the words and phrases of the challenged claims.

13

25.   My opinions on the disclosure of each prior art reference, as relevant to the limitations of claims 13-18 of the '111 patent, are provided below. I also attach separate claim charts with more detailed explanation as an Appendix to this Declaration.

A.   Ground 1: Popp Discloses Each Limitation of Claims 13-18 of the '111 Patent

26.   According to the face of the document, Popp (Ex. 1004)[3] is a U.S. patent that issued on June 19, 2001, from an application that was filed on September 22, 1995. I have been informed by counsel that it meets the requirements to be prior art to the '111 patent. Popp discloses a multi-layered development architecture for web page applications that incorporates change management. For example, Popp's system can be used to provide a dynamic user interface for an internal application that can respond to user input. (8:24-26.) The user interface is in the form of a Web page that can present corporate data from a database and can receive user input to modify information in the database. (21:7-11.) The system maintains separation between the application's data and presentation by defining the presentation via an object tree built from shared components, and by utilizing intermediary objects (context objects) for linking and pushing data from the database into the Web page presentation. (21:24-35.)

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[3] Unless otherwise indicated, all citations in Section VI.A are to Ex. 1004.

27.   After reviewing Popp and claims 13-18 of the '111 patent, it is my opinion that a POSA would understand Popp to disclose every limitation of these claims. The basis for my opinion and the details of my analysis are provided below.

        i.   **Claim 13: "A system, comprising:**

        a.   **"[*A1*] a server accessible by a browser executed on a client device,"**

28.   Popp's system includes a server, represented in FIG. 2 as Server Domain 208, which includes HTTP Server 206, CGIMessenger 210, Application 214, and Database 224. All of these components can be implemented on the same server. (7:28-30 ("Application 214 can execute on the same or different server as CGIMessenger 210 and/or HTTP Server 206, for example."); 7:32-33 ("Database 224 can be resident on the same server as application 214."); 5:56-57 ("The present invention can be implemented on a general purpose computer.").)

29.   Popp's system also includes client device 202 connected to server domain 208 over a Corporate Network 200 and the Internet 204. (FIG. 2.) Client 202 is a personal computer (6:38), and corporate network 200 and the Internet 204 are computer networks (6:37-44). Popp's client device 202 executes a browser by which server domain 208 is accessible. (FIG. 2; 6:39-40 ("Client 202 executes a browser such as Netscape or Mosaic to interface with World Wide Web (WWW) 204.").)

15

      b.   **"[*A2*] the server including a first portion, a second portion, a third portion, and a fourth portion,"**

30.   See ¶¶ 31-40 below.

      c.   **"[*B*] the first portion of the server having information about unique aspects of a particular application,"**

31.   Popp's system includes database 224 (also referred to in Popp as database server 318 (FIG. 3A) and data source 630 (FIG. 6B)), which is one or more components or functionality of or on the server (¶ 22 above), and is therefore a first portion of the server. (7:32-33 ("Database 224 can be resident on the same server as application 214.").) The database contains information about unique aspects of a particular application, such as a particular Web page for car shopping. (9:4-10 ("Internal application 320 can be, for example an Automobile Shopper's application. It can be used by a prospective car buyer to select a car. A car shopper accesses the Automobile Shopper's application. The application provides a series of screens (i.e., Web pages) based on user-input that are designed to facilitate the selection and purchase of an automobile."); 9:56-61 ("The application sends the qualifier object and fetches all the data from the database. An array of data is returned from the fetch operation. For example, the array contains all of the models of cars that are within the price range and type specifications provided by the shopper in the 'Welcome' page.").)

16

32.   A Web page dynamically generated by Popp's system is an application as recited in claim 13, i.e., a program executable by a computer to do something useful other than maintaining the computer itself. (See ¶ 21 above.) (3:55-59 ("[T]he present invention is used with an application on the server side of the connection to dynamically generate Web pages. The Web pages contain application information and provide the ability for the user to specify input.").) The Web page is a program written in a language such as HTML or Java, which is executable by a computer's browser to do useful things such as displaying information to a user, eliciting and receiving input from the user, etc. (2:25-3:3; 7:45-49 ("[T]he present invention can be used to access a Web page (e.g., an HTML Web page) that is dynamically generated using complex queries (or other data retrieval mechanisms) to retrieve data and dynamically generate an HTML page using complex logic."); 11:13-17.) A POSA would understand that a Web page creatable by Popp's system can include executable code in any of a variety of programming languages in addition to HTML and Java mentioned by Popp, such as Javascript, VBScript, Python, CSS, etc.

33.   While Popp uses the term "application" to refer to a program on the server that generates Web pages (i.e., application 214), it is the Web page generated by application 214 that corresponds to the "particular application" recited in the '111 patent. Both are "applications" as the term is used in the '111

patent, and the Web page is a "particular" one meeting the limitations of the

particular application in the claims. Direct quotations from Popp use the term

"application" to refer to the internal application 214. However, in my analysis, I

refer to application 214 as Popp's "internal application," and to Popp's Web page

as corresponding to the '111 patent's claimed "application" or "particular

application."

> d.   **"[*C*] the second portion of the server having information about user interface elements and one or more functions common to various applications, the various applications including the particular application,"**
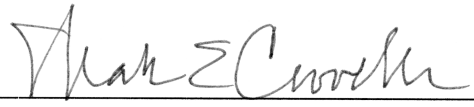
34.   Popp's system includes a tree of objects 216, which is a second

portion of the server, containing information about UI elements and functions

common to various applications. (FIG. 2; 12:21 ("Referring to FIG. 2, application

214 includes objects 216."); 7:28-30 ("Application 214 can execute on the same or

different server as CGIMessenger 210 and/or HTTP Server 206, for example.").)

The objects 216 correspond to HTML elements that define a Web page, and

include component sub-trees (FIG. 6C; 25:7-8) that contain information about UI

elements and functions common to various applications, including the particular

application whose unique aspects the database has information about (see ¶ 31

above). A component can represent a portion of a Web page, which can be shared

across Web pages and across applications. (4:41-43 ("A reusable or sharable

18

client device. (Ex. 1007 at 42; see ¶ 69 above.) The instructions, when executed

by the client's browser, present to the user (and thus are associated with) the

functionality and user interface of the presentation (the claimed application – see ¶

71 above). (1:8-14.) Since the configured presentation combines information from

the database (first portion of the server) with information from the template

presentation (second portion of the server), the configured presentation's

instructions (Java applet in the combination of Balderrama and Java Complete) are

configured to communicate information associated with the first information and

the second information. (See ¶ 74 above.)

VII. SIGNATURE

83.   I hereby declare that all statements made in this declaration of my

own personal knowledge are true and that all statements made on information and

belief are believed to be true; and further that these statements are made with the

knowledge that willful false statements and the like are punishable by fine,

imprisonment, or both, under Section 1001 of Title 18 of the U.S. Code.

Executed on:__8/17/15__   _____
                                Mark E. Crovella, Ph.D.